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Indian Standard

KNITTED FABRICS — DESCRIPTION OF DEFECTS — VOCABULARY

ICS 59.080.30;01.040.59

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Price Group 5

Hosiery Sectional Committee, TX 10

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 8499 : 1990 'Knitted fabrics — Description of defects — Vocabulary', issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendation of the Hosiery Sectional Committee and approval of the Textile Division Council.

The text of ISO standard has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

> Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

The French text has been deleted while adopting this International Standard.

In order to align Indian Standard on the subject with corresponding International Standard, at the time of revision of IS 4125 : 1987 'Glossary of terms pertaining to defects in fabrics', it was decided to adopt ISO 8498 : 1990 'Woven fabrics — Description of defects — Vocabulary', and ISO 8499 : 1990 'Knitted fabrics — Description of defects — Vocabulary' under dual numbering system. IS 14666 covers description of defects in woven fabrics. Accordingly this standard supersedes IS 4125 : 1987.

Indian Standard

KNITTED FABRICS — DESCRIPTION OF DEFECTS — VOCABULARY

Section 1: General

1.1 Scope

This International Standard describes defects which commonly appear during the inspection of knitted piece-goods.

The purpose of this International Standard is to define knitted-fabric defects, i.e. those characteristics that have been unintentionally introduced into the fabric. The presence of one or other of these characteristics in a fabric does not automatically imply that the fabric is sub-standard. Textile suppliers and purchasers will still have to reach agreement on whether a defect is present. If it is considered that a defect is present they will then have to agree on the limits of the defect and on any allowance to be made, bearing in mind the intended use of the fabric.

Sections 2 to 6 of this International Standard cover the following groups of defects:

Section 2 : Yarn defects in a knitted fabric
Section 3 : Defects in the course direction
Section 4 : Defects in the length direction
Section 5 : Defects due to, or apparent after, dyeing, printing or finishing
Section 6 : General defects

Except where otherwise stated, the descriptions apply to defects appearing in both warp-knitted fabrics and weft-knitted fabrics.

1.2 General definitions

For the purposes of this International Standard, the following general definitions apply:

1.2.1 band : A width-way region of the fabric that extends across the full width and is different from the rest of the fabric. It may or may not run parallel with the courses and may or may not have clearly defined edges.

1.2.2 defect : A fault that would reduce the expected performance of the fabric or, if it appeared in a prominent position in an article made from the fabric, would readily be seen and rejected by a prospective purchaser.

1.2.3 line : A narrow variation, often only one wale wide, in the length direction.

1.2.4 steak : A variation of generally varying width which may or may not be parallel to the length direction.

Section 2 : Yarn defects in a knitted fabric

2.1 **bright yarn** : A yarn, in a course or wale, of higher lustre than the adjacent yarns.

NOTE — This defect is caused by irregularity in processing of the yarn, e.g. uneven distribution of delustrant, or by mixing yarns of different delustrant content, e.g. dull, semi-dull, etc.

2.2 **broken filaments:** In a fabric made from flat or low twist continuous-filament yarns, a fibrous or hairy surface appearance that may be localized or general.

NOTE — This defect is caused by rupture of individual filaments, usually during winding or knitting.

2.3 **course yarn:** A yarn of substantially and unacceptably greater thickness than that of the adjacent yarns.

NOTE — This defect is caused by variation in the linear density of the yarn, which is otherwise of the correct nominal linear density.

2.4 **cockled yarn:** Small slub-like irregularities in the yarn that are readily extensible and that cause loop distortion.

NOTE — This defect is often caused by the unintentional introduction of stretch into some fibres during drafting and the subsequent relaxation of these fibres to form loops or crimps in the yarn.

2.5 **faulty texturing:** Portions of a bulked yarn that differ from the normal yarn in respect of degree of crimp and similar distortions of the filaments.

NOTE — This defect is caused by a lack of control during texturing processes.

2.6 **fine yarn; thin end:** A yarn whose thickness is unacceptably less than that of the adjacent yarns.

NOTE — This defect is caused by variation in the linear density of the yarn, which is otherwise of the correct nominal linear density.

2.7 **gout:** A lumpy, asymmetrical fault in a spun yarn of a fabric.

NOTE — This defect is caused by the accumulation of undrafted waste fibre into the yarn during spinning.

2.8 **slub:** In a yarn, a thickened place having tapering ends and a diameter several times that of the adjacent normal yarn.

NOTE — This defect is often caused by the presence in the yarn of fragments of undrafted roving or slubbing that have not been cleared during winding.

2.9 **soiled yarn:** An individual yarn that is discoloured by dirt, oil or other contaminants.

NOTE — This defect is caused by the contamination of the yarn prior to, or occasionally during, knitting.

2.10 **split yarn:** A yarn which appears in the fabric as a thin yarn.

NOTE — This defect is often caused by abrasion or excessive tension during winding or knitting, which breaks a part of the yarn (e.g. a filament of a continuous-filament yarn or a ply of a two-fold yarn) that is subsequently held back during knitting.

Section 3: Defects in the course direction

3.1 barré; bars: Bands with clearly defined edges, running full width across a fabric or spirally in a tubular fabric, which differ in appearance from the adjacent normal fabric.

NOTE — This defect is caused by feeder variation or variation in yarn characteristics.

3.2 bow; bowing: Excessive curvature of the courses in a fabric that may or may not extend over the full width.

NOTE — This defect is often caused by incorrect take-down tension during knitting or incorrect feeding during finishing.

3.3 feeder variation; machine barré; slack course; tight course: A course which differs in appearance from normal courses in a fabric knitted on a multi-feeder machine.

NOTE — This defect is caused by one feeder not delivering the same length of yarn as the other feeders.

3.4 missing yarn: A yarn absent from a pattern.

NOTE — This defect is the result of a machine continuing to run with one feed of yarn missing.

3.5 press-off: A breakdown in the knitted structure over a discrete area.

NOTE — This defect is caused by fabric coming off the knitting needles due to a failure in the yarn supply.

3.6 start-up mark; stop mark; stopping line: A band of several courses having stitch characteristics different from those in the normal fabric.

NOTE — This defect is caused by a change in yarn tension resulting from the deceleration and standing time when a machine stops.

3.7 thick place: A prominent band in which an increase in stitch density, compared to the rest of the fabric, is apparent.

NOTE — This defect is often caused by a poor start-up of the machine, or uneven let-off or take-up.

3.8 thin place: A prominent band in which a decrease in stitch density, compared to the rest of the fabric, is apparent.

NOTE — This defect is often caused by uneven yarn let-off or fabric take-up.

3.9 wrong yarn: A yarn in a weft-knitted fabric that differs from normal yarn in respect of composition, thickness, filament or colour.

NOTE — This defect is caused by a lack of control of incoming material.

Section 4: Defects in the length direction

4.1 dragging end: One or several wales in a warp-knitted fabric in which the laps appear shorter than those in the adjacent normal wales.

NOTE — This defect is caused by excessive tension in one or more warp yarns.

4.2 end out: A warpways steak in a warp-knitted fabric in which some of the laps are missing.

NOTE — This defect is caused by a warp yarn breaking or running out.

4.3 fish eye; pinhole: Small apertures occurring occasionally in a wale.

NOTE — This defect is caused by a malfunctioning needle forming random tuck stitches.

4.4 misdraw; wrong draft; wrong draw: Warp yarns that do not conform to the intended threading pattern in a warp-knitted fabric.

NOTE — This defect is caused by yarns being drawn into the knitting elements in the wrong sequence.

4.5 needle line: A wale that is different in configuration from the adjacent normal wales.

NOTE — This defect is caused by a misaligned or broken needle which forms distorted stitches.

4.6 spirality; wale spirality: A distortion in a weft-knitted fabric in which the wales are clearly not at right angles to the courses.

NOTE — This defect is caused by twist-lively yarn (due to insufficient setting).

4.7 straying end: In a warp-knitted fabric, a length of yarn that has been knitted incorrectly and irregularly into the fabric.

NOTE — This defect is caused by a broken and straying over adjacent needles and being knitted into adjacent wales at random.

4.8 wrong end: In a warp-knitted fabric, a yarn that differs from normal yarns in respect of composition, thickness, filament or colour.

NOTE — This defect is caused by a lack of control of incoming material.

Section 5 : Defects due to, or apparent after, dyeing, printing or finishing

5.1 barriness: Bands with clearly defined edges that run full-width across a fabric, or spirally in a tubular fabric, and that differ in colour, yarn characteristics or texture from the normal fabric.

NOTE — This defect is caused by differential dyeing effects in the areas where yarn characteristics or fabric texture vary from the normal.

5.2 bleeding; colour bleeding: Loss of colorant from a coloured material in contact with a liquor, leading to an obvious coloration of the liquid, or of adjacent areas of the same or other materials.

NOTE — This defect is caused by poor wet fastness of the dyeing or printing.

5.3 blinding; dull: Terms used to described a marked loss of lustre of fibres during wet processing.

NOTE — This defect is caused by the inclusion within the fibre of optical discontinuities, e.g. voids, or particles of dye or pigment, that scatter light, or by an alteration in the physical structure of the dye.

5.4 blot: An area of uniform colour appearing incorrectly in a printed design.

NOTE — This defect is often caused by colour paste falling on to the fabric, or contamination from printing rollers or a screen.

5.5 bronzing: A coppery lustre on a fabric surface.

NOTE — This defect is caused by excessive dyestuff present during dyeing, or by precipitation of the dyestuff.

5.6 bruise: An area of localized compression within a fabric.

NOTE—This defect is often caused by the squeezing or crushing of the fabric.

5.7 clip mark: A rectangular area of fabric adjacent to the selvedge, which is characterized by bruising, lustre, surface disturbance, or a difference in colour from the normal fabric.

NOTE—This defect is caused by a maladjusted stenter-clip.

5.8 colour out: Colours missing from an area of design in a printed fabric.

NOTE — This defect is often caused by a blocked screen or a faulty colour supply.

5.9 colour smear: Colour smudged out of the intended design area.

NOTE — This defect is often caused by incorrect viscosity of the printing paste, a maladjusted machine, or a poorly set or damaged doctor blade.

5.10 crack marks: In a fabric, permanent creases or lines which run in various directions.

NOTE — This defect is caused by irregular creasing during wet finishing.

5.11 creases: A hard fold in a fabric, i.e. one that cannot be readily removed by those means normally available to a garment maker, e.g. by steam pressing.

NOTE — This defect is most often caused by distortion of the yarns during wet processing.

5.12 crease mark: A mark left in a fabric after a crease has been removed during fabric processing.

NOTE — This defect is the result of a permanent distortion of the yarns or damage to the fibres during creasing.

5.13 crease streak: A dyed-in mark of a crease, usually along the length direction, of a lighter colour within the crease area and often with edges darker than the adjacent normal fabric.

NOTE — This defect is often caused by the fabric being pad-dyed whilst creased.

5.14 crows' feet: Wrinkles of varying degrees of intensity and size that give the overall effect of birds' footprints.

NOTE — This defect may be caused during wet processing or by careless folding of finished goods.

5.15 deep pinning: Conspicuous pin stenter marks appearing in the body of the fabric and so reducing the usable width of the fabric.

NOTE — This defect is often caused by incorrect feed on to a pin stenter.

5.16 doctor blade streak; doctor streak: On a fabric, a length ways streak of excess colour or excess coating.

NOTE — This defect is caused by a damaged or incorrectly set doctor.

5.17 dye mark; dye spot; dye stain: In a piece-dyed fabric, a discrete area of different colour.

NOTE — This defect is often caused by contamination with concentrated dyestuff or dyeing assistants.

5.18 ending: A difference in colour between the bulk and one end of a piece of fabric.

NOTE — This defect is caused by the premature exhaustion of the dye bath in continuous dyeing.

5.19 halo: An area of light colour surrounding a localized thick portion of the fabric after dyeing.

NOTE — This defect is often caused by migration of dye during drying or by less dye reaching the area around the thickening (e.g. knot, slub, gout) during pad dyeing.

5.20 heavy colour; machine stop: Excess colour smudged in a widthways band.

NOTE — This defect is often caused by the stopping of a printing machine allowing more paste than normal to penetrate the fabric.

5.21 listing: A difference in colour between the selvedges and the centre of a fabric.

NOTE — This defect is often caused by uneven batching-up of the fabric or by differences in temperature from the selvedges to the centre of the fabric during dyeing and finishing.

5.22 misregister, out of register: In a printed fabric, colours not correctly positioned with respect to each other.

NOTE — This defect is often caused by printing rollers or screens not being synchronized.

5.23 mottled appearance: Variation in colour or surface effect, localized or general, which is not specifically orientated in the length or width directions.

NOTE — This defect is often caused by uneven application or penetration of dye or by surface distortion.

5.24 pilling: Small accumulations of fibre on the surface of a fabric.

NOTE — This defect is usually caused by abrasion during prolonged finishing processes.

5.25 pin marks : A series of small apertures or severed yarns running parallel to and near the fabric edges.

NOTE — This defect is caused by hooked, blunted or poorly adjusted stenter pins.

5.26 pressure mark: An area of greater lustre, or of reduced thickness, in a fabric when compared to the adjacent normal fabric.

NOTE — This defect is often caused by irregularities of pressure during the finishing process.

5.27 rope marks: Long, irregularly shifting, longitudinal markings on dyed or finished fabrics.

NOTE — This defect is frequently caused by overloading machinery for wet processing fabric in rope form, resulting in uneven liquor penetration or the formation of creases along which abrasion or felting may occur.

5.28 selvedge turndown: A lengthways streak immediately adjacent to the selvedge, characterized by a difference in colour from that of the body of the fabric, by surface disturbance, or by both.

NOTE — This defect is caused by the selvedge having folded over, thus shielding the edge of the usable fabric during processing.

5.29 shading: A side-to-side change of colour across the width of a fabric.

NOTE — This defect is caused by uneven concentration of dyestuffs or by temperature variations during dyeing and finishing.

5.30 skitteriness: An undesired speckled effect in a fabric or in a yarn within a fabric.

NOTE — This defect is caused by differences in the depth of dyeing between adjacent fibres or portions of the same fibre.

5.31 stripiness; warp-ways bars: Lengthways areas of several wales width appearing darker in colour from normal fabric.

NOTE — This defect is caused by wale-consolidation or distortion arising from uneven width tension during knitting that is subsequently accentuated by dyeing and finishing, or from poor width control during open-width processing.

5.32 tailing: A continuous change in colour along the length of a piece.

NOTE — This defect is often caused by a gradual change in dye-bath concentration or temperature.

5.33 undyed crease: In a printed fabric, a well defined lengthways streak from which the colour is missing.

NOTE — This defect is caused by passing a creased fabric through the printing machine.

5.34 water spot: an unwanted pale area in a piece-dyed fabric.

NOTE — This defect is caused by contamination with water prior to tinting or dyeing on a pad mangle, which results in a reduction of uptake of dye liquor.

Section 6: General defects

6.1 abrasion mark; chafe mark: An area of localized wear characterized by excessive surface hairiness or denuded fibre.

NOTE — This defect is often caused by chafing or oblique impact with a hard or rough surface.

6.2 bad odour: A disagreeable smell that is not usually associated with the fabric.

NOTE — This defect is often caused by the breakdown of finishing resins, fermented starch, mildew, or the presence of other contaminants.

6.3 bursting; cutting: The presence in a fabric of several individual stitches which have been severed.

NOTE — This defect is caused by the knitting elements cutting or damaging the yarn during stitch formation and may not become apparent until tensions are imposed during finishing.

6.4 cockling: An irregular three-dimensional effect in a fabric which prevents it from lying flat.

NOTE — This defect is caused by stitch distortion, uneven yarn relaxation or, shrinkage.

6.5 coloured flecks; coloured fly: a small quantity of coloured fibre unintentionally incorporated into the structure of a fabric of a different colour.

NOTE — This defect is often caused by small amounts of coloured waste fibre being spun into a yarn of another stock, or by different fibres or colours running or being knitted in close proximity without adequate precaution against contamination.

6.6 defective plating: The appearance on the face side of a fabric of the wrong one of two yarns knitted simultaneously at a feeder.

NOTE — This defect is caused by poorly differentiated feed heights or tension during plating.

6.7 displaced inlay yarn: A break in the intended pattern of an inlay pile fabric.

NOTE — This defect is caused by a disruption in the synchronization of the knitting elements that control the position of a fleecy yarn in a laid-in fabric.

6.8 disturbed place: An area where the knit structure has been disarranged, but where the yarns are undamaged.

6.9 dropped stitch: A wale, within one course, in which the yarn has not been formed into a stitch.

NOTE — This defect is caused by a needle failing to take the yarn, or by the yarn casting off from the knitting elements prematurely.

6.10 emboss mark; impression mark: A small area of the fabric standing out in relief.

NOTE — This defect is often caused by the relief print-off of defects such as slubs under excessive rolling tension.

6.11 float: A length of yarn extending unbound over a number of wales with which it should be intermeshed.

NOTE — This defect is caused by a needle failing to take the yarn, or by yarn casting off from the knitting elements prematurely.

6.12 fogmarking: Localized soiling of a fabric usually confined to edges and folds, though sometimes apparent as bars.

NOTE — This defect is caused by deposition of atmospheric dirt during waiting periods in processing or storage, and is often aggravated by static-charge attraction.

6.13 foreign body: An inclusion of non-textile matter.

NOTE — This defect is often caused by insufficient attention to the cleanliness of the knitting machines and of the knitting room.

6.14 foreign fibres: Fibres of a different type and/or colour from the other fibres in the fabric.

NOTE — This defect is caused by the contamination of the fabric by extraneous fibre which is either included in the yarn or knitted into the fabric.

6.15 hole: A breakdown in the fabric where one or more adjacent loops are severed.

NOTE—This defect can be due to very many causes, amongst which are: careless handling of the fabric, defective machine elements, chemical damage, insect damage or damage during finishing such as lack of control during singeing, shearing, etc.

6.16 ladder: A wale or several consecutive wales in a weft-knitted fabric in which the loop formation has collapsed into straight lengths of yarn.

NOTE — This defect is caused by the breakdown of a stitch that, when the fabric is subsequently subjected to tension, permits the de-knitting of the stitches in the same wale or wales within previous courses.

6.17 missing plush loops: An area in a plush fabric that is devoid of plush loops.

NOTE — This defect is caused by the malfunctioning of the loop-forming elements.

6.18 neppy fabric: An excessive number of small tangles or knots of fibre appearing on the fabric surface.

NOTE — This defect is often caused by poor carding or combing of fibre or by contamination during preparation for spinning.

6.19 over-raised: Excessive surface nap that may or may not be accompanied by damage to the ground structure.

NOTE — This defect is a caused by the incorrect setting of the raising machine or irregular feed of the fabric.

6.20 scallops: The edges of a fabric exhibiting approximately sinusoidal waveforms of short wavelengths in the plane of the fabric.

NOTE — This defect often appears in a fabric which has been stretched excessively widthways during stentering.

6.21 skewing: Courses that are straight but at an excessively oblique angle to the fabric edges.

NOTE — This defect is caused by uneven take-down during knitting or a failure to line up the fabric edges during open-width finishing.

6.22 snag: A yarn, or fibres or filaments from a yarn, standing out from the fabric surface as a loop or broken tuft.

NOTE — This defect is caused by a yarn, or fibres or filaments from a yarn, catching on a sharp projection and being drawn out from the structure.

6.23 snarl: A short unbroken length of yarn which is doubled-up in the fabric.

NOTE — This defect is often caused by a yarn under insufficient tension twisting about itself, either prior to or during knitting, and by twist liveliness.

6.24 stain: A discrete area of discoloration of a fabric.

NOTE — This defect is caused by contamination with extraneous substances such as dirt, oil or rust.

6.25 under-raised: Insufficient coverage of the ground structure of a raised fabric.

NOTE — This defect is caused by the incorrect setting of the raising machine or an insufficient number of passes of the fabric through the raising machine.

6.26 uneven appearance: A fabric that is unacceptable in terms of overall character.

NOTE — This defect may be due to numerous small blemishes, e.g. uneven yarns, small slubs, that individually would not constitute a fault.

6.27 uneven raising: Irregularities in the appearance of a raised fabric where areas of under-raising and/or over-raising are present.

NOTE — This defect may be caused by variations in the fabric structure or in processing prior to raising, or to lack of control of the raising machine.

6.28 water damage: A stain that has a sharply defined straight or wavy edge and that fades away rapidly to normal colour.

NOTE — This defect is caused by deposition of dye, soil or finishing compounds carried by water wicking through the fabric, and represents the furthest point of this migration.

6.29 water mark: Irregular light and dark bands giving a rippled effect similar to moire.

NOTE — This defect is caused by the fabric having been subjected to excessive heat and/or pressure and occurs more often in fabrics having a ribbed or corded structure.

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